Atomically Uniform Thin Films on Silicon

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- Atomically uniform metal films (lead) have been successfully grown on a semiconductor (silicon) for the first time.
- Angle-resolved photoemission shows quantum well states due to confinement.
- Unusual oscillations in electronic structure due to band structures of lead and silicon.

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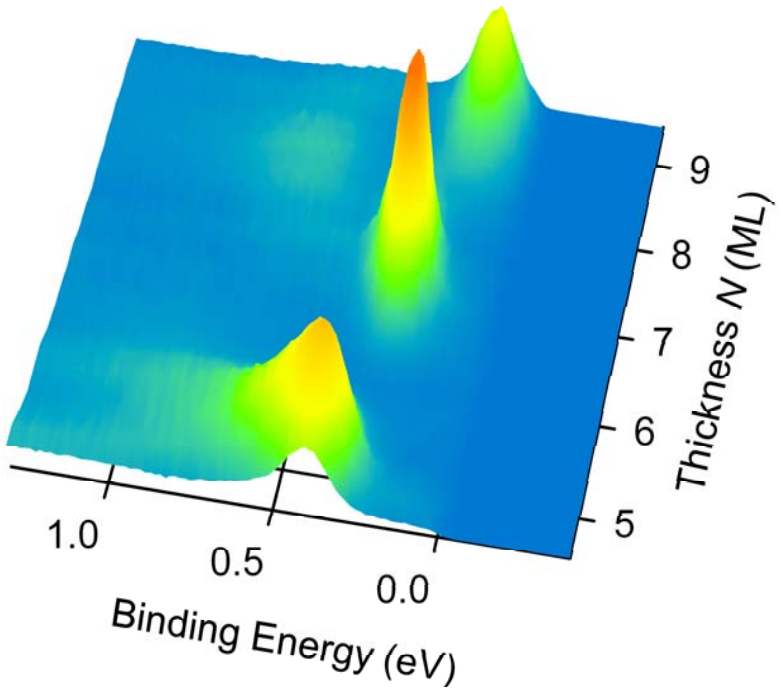

Quantum well states as a function of film thickness (ML = monolayer). Note the dramatic differences between even and odd film thicknesses.

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Nanoscale structures show us how to make electronics better and smaller. The lead on silicon system is important because …

- First system with uniform metal films on semiconductor
- 2nd system that yields atomically uniform films
- Films are prepared on silicon, the most important material in electronic devices

Work carried out at SRC.